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# Editorial: Editors' showcase: structural materials

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## KEYWORDS

editorial, structural materials, showcase, construction, engineering

## Editorial on the Research Topic [Editors' showcase: structural materials](#)

We are very pleased to present this Research Topic that highlights some of the outstanding work of the editorial team of the Structural Materials section of *Frontiers in Materials*. The breadth and depth of expertise featured in our editorial board is clearly evident in this Research Topic of articles, which range in topics from rock mechanics to cement chemistry, and from metallurgy to materials synthesis. Looking back to the opening of the Structural Materials section and the featured “Grand Challenges” article published in 2015 (Provis, 2015), it is striking that the topics featured in this Showcase Research Topic are very well aligned with the Grand Challenges of the section: bottom-up materials design, sustainable materials supply, and durability under extreme conditions. These areas—And with additional focus now on digitalisation—Continue to set the agenda for research in the field of structural materials.

Introducing each of the Research Topic articles in turn: Zhang et al. have presented an innovative strength model based on fracture theory for the backfill-rock interface, which is important in ensuring safety and efficiency in extractive industries. Zhao has defined a new process route for large-scale synthesis of metal-organic frameworks that can be used as sorbents and catalysts for industrial decarbonisation. Xie et al. have developed new insight into the degradation, at various scales, of aircraft turbine blades, which takes place under extremely challenging service conditions, raising important recommendations for materials assessment and test protocol design. Wisniewski and Ducman have assessed alkali-activated cementitious materials as inorganic adhesives for a wide range of substrates, reaching very good performance in cases where the adhesive and substrate were highly compatible and identifying further opportunities to analyse interfacial binding and compatibility. Finally, Gong et al. applied density functional theory-based modelling to probe the essential chemical-level interactions that control many aspects of the formation, strength, and stability of aluminosilicate

cements and glasses, and generated a methodology for rapid prediction of binding energies.

We trust that this Research Topic will be of high interest to the readership of *Frontiers in Materials*, and will continue the journal's well-established track record as an outlet for high-quality and insightful research.

## Author contributions

JP: writing—Original draft XZ: writing—Review and Editing. All authors contributed to the article and approved the submitted version.

## Reference

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## Conflict of interest

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